European boxboards face market fight

In the U.K. and all of Europe, folding carton merchants will stay competitive only through scrupulous attention to market attrition, social trends, and customer demands.

by Rowena Mills, Chief Executive, Rowena Mills Associates, B. Sc. (Econ.), F. Inst. Pkg., London

The following is a slightly edited version of a speech presented to the European Carton Makers Association's (ECMA) 1984 Congress in Vienna.

In the U.K., the folding carton has held its ground much better than have the other paper-based packaging materials, and better than most other packaging materials as a whole.

In terms of value of production of the major packaging sectors, the percentage attributed to cartons amounted to 12% in 1982 compared with only 11% in 1979.

In absolute terms, however, production fell away, and thus compared unfavorably with the carton industries of, for example, West Germany, France and the U.S.

In particular, the U.K. carton industry was adversely affected by imports. Net imports rose from −£7.0 million in 1979 to +£34.3 million in 1983. (In the rest of Europe as a whole, imports proved a smaller problem.)

Thus, U.K. consumption of cartons over the period suffered by no means the same magnitude of decline as did production; indeed, taking the value of the imports of unfilled cartons along with U.K. production of folding cartons, in those two years the value of consumption rose by nearly 20%. However, with prices rising by about a third over the period, the volume of consumption of cartons filled in the U.K. probably fell back by over 10%. Adding the consumption of imported goods packaged in cartons, however, the actual consumption of cartons both filled and unfilled in the U.K. over the period will have shown a much more favorable figure.

Rowena Mills

The pattern of consumption of folding cartons of the traditional type showed a shift in trend, with the percentage of total consumption absorbed by the food, drink and tobacco industry rising from 55.3% of the total in 1979 to 64% in 1982. A continuation of this trend is likely.

New technology

More important, in this period, new ideas and new technology were emerging. In this era of recession were born the seeds of new development in the folding carton industry, which will undoubtedly prove to be its salvation in the future. In particular, the developments in liquid packaging and bag-in-the-box are of major importance.

First, let us consider the future of the packaging industry as a whole, and then consider the potential for the folding carton within that field.

In the past, the packaging industry realized superior performances as a whole. But will it continue to do so in the future?

A whole range of factors enabled that industry to achieve this rapid rate of growth—factors, however, that are unlikely to have a parallel effect over the coming decade. In addition, there is an increasing number of factors likely to inhibit, rather than encourage, an above-average rate of expansion: most notably the growing recognition of social responsibility and the increasing move towards supporting the environmentalists' lobby through legislation.

Population growth was a very important factor in enabling the packaging industry to achieve rapid expansion, particularly in the '50s and '60s. The rate of increase has now declined in the U.K., however, and in the future will not parallel those past years.

Over that period, too, the number of married women working rose annually—in the U.K. from one third of all married women in 1960 to nearer two thirds by the end of the '70s.

This increase had a more than proportional effect upon the demand for packaging, as the working wife tends to spend more on

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convenience foods than does the average housewife.

Since the onset of the recession, however, working women have been hit by the downturn in the demand for labor; and, with rising unemployment, married women have suffered a greater degree of job loss. Not only is this evident in the unemployment returns, but it is known that a large number have simply disappeared from the working scene without registering as unemployed.

Less spending

Foremost among factors encouraging a high rate of growth in the demand for packaging was the steady upward movement in real incomes up to the mid-1970s.

However, the outlook for much of Europe for the next decade is of a slower growth in incomes than in the period before the oil crisis.

More important, perhaps, the general pattern of consumer expenditure has tended to change over the past half-decade.

As a society's standard of living rises, the proportion of real disposable income spent on foods tends to fall. This has even proved true at a time, as in the period 1975-1980, when the real cost of food was actually falling. Since the food industries absorb between two thirds and three quarters of the total market for packaging materials, this factor is significant in predicting the rate of growth of the packaging industry. (Nevertheless, the rate of decline in spending on food is seen as slowing up over the rest of the '80s.)

The number of unemployed is at a record high throughout the world, and in Europe is likely to remain so for some time to come. This factor will certainly rub off on demand for packaging; unemployed quickly become highly discerning in terms of comparable costs of everyday necessities. They undoubtedly lean towards products with the minimum of packaging.

Not only will the level of unemployment remain high and total population relatively static, but within that population structure the number of people of retirement age will constitute an annually increasing proportion, with a consequent effect upon disposable incomes and hence upon the demand for packaging.

Many other factors and developments in the postwar years have encouraged, indeed in some cases actually brought about, the growth of the packaging industry. Of these, self-service retailing has probably been the most significant.

Self-service and supermarket outlets increased rapidly in the 1950s and 1960s, but the rate of growth has tended to slow as the system has approached maturity, and the potential for further growth is now very limited.

Changes, however, will occur, for example, in the development of hypermarkets, which will probably alter the nature of demand for packaging.

> In the U.K. generally, the folding carton has held its ground much better than have the other paper-based packaging materials, and better than most other packaging materials as a whole.

Most of the factors influencing the rapid growth in demand for packaging, both in the 1970s and earlier, are thus expected to lose their impetus, either to some degree or entirely, in the 1980s. This may well apply to a large number of other factors, for example the trend towards increased home storage, freezer ownership, increased standards of hygiene, and car ownership.

Shorter work week

One factor, however, likely to have a continuing advantageous effect upon the demand for packaged goods is the predicted reduction in the length of the working week, accompanied by an increase in leisure activities and thus a greater demand for packaged foods and beverages—for conveniences, for take-home and for outings.

Over the past few years, the potential for packaging products previously sold loose has steadily diminished. However, certain products might still constitute an extended market for packaging: horticulture, whole carcasses, peeled or shredded fresh fruits and vegetables (both imported and homegrown), bakery goods, hardware and ironmongery, etc.

Finally, reference has already been made to the possible restraints upon packaging industry growth posed by two factors: growing awareness of the need for social responsibility, and increased pressure for anti-packaging legislation (the latter reflected mainly in a lobby opposing returnable beverage containers).

The future, therefore, for the packaging industry will, I believe, be one of slow growth, with the rate of increase in production no longer exceeding that of manufacturing generally, as it did in the halcyon days before the oil crisis. The modest upturn of 1984 seems likely to be succeeded by further limited expansion in 1985 (providing, of course, that there is no further oil crisis, comparable with that of 1973-74 and 1978-79). It is quite possible, however, that 1986-87 will see either a flattening out of the upward curve, or a moderate decline; but an upward trend might be resumed towards the end of the decade.

This, I believe, will be the character and structure of the packaging industry:

Market attrition

Undoubtedly, the older traditional materials will continue to lose their market share. Many of these will be pulp-based materials, in particular paper for packaging and wrapping, paper sacks and bags, regenerated cellulose film, rigid paperboard boxes and solid fibreboard cases.

Demand for jute sacks and wooden containers will continue to fall, and the glass container is likely

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U. K. CONSUMER EXPENDITURE ON FOOD AS PERCENT OF TOTAL EXPENDITURE

1960	28.4%
1965	25.4%
1970	20.4%
1975	19.1%
1980	17.2%
1981	16.3%
1982	15.4%
1983	15.0%

Source: Central Statistics Office

to experience a year-on-year decline. Metal cans and steel drums are also seen as gradually losing their market position as the trend to flexibles and semi-flexibles continues.

Mainly benefitting from this trend will be laminates of all types, plastic and other films, aluminum foil, and, I believe, folding cartons.

The degrees to which European consumption of cartons will increase over the next five years is, however, extremely difficult to predict—possibly by some 2 to 4% per annum up to 1986, at which date there is likely to be a pause in the upward curve. By 1987-88 the upward trend is likely to be resumed.

In the packaging industry as a whole we shall see:

- even further reduction in capacities,
- more vertical and horizontal integration,
- increased use of systems and in-plant production,
- changing formulations of the package,
- changing formulations of the product itself,
- innovation of new materials and shapes,
- better packages
- and increased search for economy.

The search for economy will be particularly important. It will be reflected not only in cutting costs, but also in switching from one package to another. This will be achieved by:

- **Reduced material costs per unit.** This reduced material usage will include thinner gauges, reduced wall thicknesses, reduced overlap, better design, and reduced waste. Other factors will be larger unit sizes, reduced overwrap, increased standardization, and use of more economic materials.
- **Reduced processing costs.** This will include increased processing, filling, labeling and packaging speeds; increased automation; substitution of rectangular for round containers; and reduced energy costs.
- **Reduced distribution costs.** This changing character and structure will be very important to the carton manufacturer and will constitute for him a potential denied to many other sectors of the packaging industry.

To take full advantage of this valuable potential, the carton manufacturer will have to achieve:

- maximum market intelligence,
- effective and aggressive marketing,
- maximum cost effectiveness,
- willingness to innovate and be flexible
- and constant technical development.

The right package

Above all, he has to ensure that he is getting the right package in the right place at the right time and at the right price to the right people by using the right strategy. Trite but true!

He should, I believe, be looking at the following areas in his efforts to create new business:

- those in which the package type for any particular product groups seems likely to change, probably to his advantage;
- those where the product itself is changing, and thus has different packaging requirements;
- those where there is likely to be a search by the packager for a "different" or "luxury" image;
- and the whole growing area of multipaks.

Most important, by increasing his competitiveness, the U.K. carton manufacturer in particular can attempt to claw back that huge proportion of business lost to imports since 1979, and moreover, with the European carton manufacturer, exploit the potential through increased exports, particularly to Third World developing countries.

Let's take first those areas in which the package type is likely to

change. This will cover both foods and non-foods, liquids, powders and solids, and will be mainly reflected in a change from rigid containers to flexibles and semi-flexibles. Materials used increasingly will be laminates, aluminum foil, co-extrusions of all types, metalized film and paper, and plastic film, as well as folding cartons.

They will be used for many non-foods, for example medical and pharmaceutical goods and toiletries, photographic goods, chemicals and agricultural products, and household products.

They will also be used for a wide range of foods, including powdered beverages, pet foods, frozen foods, cooked foods, semi-cooked foods, instant sauces, and convenience foods.

The packages will take the form of pouches, made up of a wide variety of material combinations, and will be either retortable or non-retortable, many of them with outer cartons. Semi-cooked foods, too, will be increasingly packed in ovenable board and will be able to take full advantage of the very rapid increase predicted in the use of microwave ovens. In the U.K., for example, the use of microwaves is expected to rise from 7.5% of households to 20% in five years.

Aluminum foil manufacturers have striven hard with their technology to be able to compete in this field, but to date it still seems unlikely that they will succeed. The rapidly growing takeaway market also constitutes a valuable potential for folding cartons.

Liquid, bag-in-box

Very important is the potential for liquid packaging. We have seen, and will see further, a rapid expansion of the use of the Combliblock, Perga, Elopak, and Tetra for milk, wine, fruit juice, fruit drinks, sauces, and even viscous liquids such as custard.

Indeed, in Germany it is forecast that by 1990 the wine market will have increased by one third, entirely as a result of using cartons.

In the U.K., with 20% of all liquid milk sales now being sold in supermarkets, the folding carton has benefitted considerably, and a forecast that this figure will double in the next two or three years indicates the magnitude of the potential of that market.

> One factor likely to have a continuing advantageous effect upon the demand for packaged goods is the predicted reduction in the length of the working week, accompanied by an increase in leisure activities and thus a greater demand for packaged foods and beverages.

"Bag-in-the-box" is being used increasingly for wine, and packagers are looking to repeat the success in other markets with fruit juice, milk, carbonated beverages, soft ice cream, vegetable and mineral oils, and even industrial goods such as battery acids, photographic and pharmaceutical products, agrochemicals, and a range of powders as well as liquids.

There are difficulties, however, in entering these markets.

Take liquid packaging. It is extremely specialized and requires specialist knowledge, not only of the carton but of the very essential systems backup. The existing manufacturers have this knowledge and are highly focused in terms of the package and the market. They have dedicated printing and cutting and creasing equipment and they do not use standard materials.

What about the areas where the product form will change? These will be mainly in the food and drink markets. The move will be from liquid and solid to powder, granule and freeze-dried. We have already seen this trend in powdered soups, dried vegetables, instant potatoes, freeze-dried milk, dried food for pets and many nonfoods. This list is legion, and the trend will continue.

There is also the trend towards more concentrated food presentation, which implies different package requirements to the advantage of the folding carton manufacturer.

I spoke of the increasing influence of supermarkets. Their continued growth and search for profit will result in more and more "own label" goods. They will seek to cut their costs, and this can be, and is, often achieved by the use of a carton in place of a rigid container; however, margins will be small.

To the supermarket, volume spells profit. Thus we are likely to see more and more products presented in multipaks, more preprinted sleeves, more hi-cones, more shrink wrapping and carton packages of all types, with the expansion, perhaps, of the cartonboard "baskets" used for multipaks, which, with handles, encourage the return of either containers for re-use or recycling.

Moreover, the bulk of products sold in multipaks are in the beverage field, demand for which is growing more rapidly than that for most other consumer sectors.

Luxury image

Then there is the search on the part of the packager to establish a "different" or "luxury" image. This can result in the increased usage of overwrap, or cartoning, such as the relatively new presentation of "Gold Blend" coffee in the U.K.

Finally, where has so much of the business been lost in recent years? In so many cases, to imports. By 1982, 84,000 tons of plastic film, 18,600 tons of aluminum foil, £37.8 million in cartons, and 684 million glass containers were among the different types of packaging flooding into the U.K.

How to achieve increased business in all these potential markets? Certainly it is not by increasing capacity and adding to what is already an overcapacity situation in respect to virtually all traditional areas of carton manufacture.

The aim must be to vastly improve existing capacity, changing your own resources to meet market

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needs, and this is where your investment must be. This is where your market intelligence comes in! Make sure you secure customers in those fields likely to achieve the most rapid rate of growth in the use of carton packaging.

You will have to think both for yourselves and for your customers.

You will have to assess where there is a potential market for the folding carton, and, once you are convinced, you will have to go out and convince your packager.

The food and beverage industries in most parts of Europe are highly competitive and, in the case of foods, in a position of overcapacity.

Thus, the manufacturers are searching constantly for packaging that will yield cost savings. These savings are greatest in the movement from rigid to semi-rigid and flexible containers.

Those manufacturers should be, and many are, searching for innovative products to improve their profitability in a highly competitive world. Demonstrate to them that the carton is the optimum package for such new products, in terms of price and presentation.

Targets for innovation

This, however, implies the need for a radical re-thinking of your carton operation. Your financial strategy must target:

You will have to assess where there is a potential market for the folding carton, and, once you are convinced, you will have to go out and convince your packager.

- Lower manning levels (in Sweden 160 people can produce 180,000 tons of cartonboard; in the U.K. we need 600!).
- Longer runs.
- Fewer restrictive practices by unions which allow, for example, a "roving crew" to help increase makeready times when and where necessary.
- More modern machinery.
- Lower lead times.
- Much better service.
- High quality product.
- Higher quality printing.

Manufacturers of traditional materials won't give up these markets without a struggle! In the U.K., for example, the Glass Manufacturers' Federation spent £300,000 in 1984 on promoting glass containers to attempt to wrest back markets lost to competitive containers, including liquid packaging and bag-in-the-box.

The manufacturers of other materials will also try to take advantage of the new potential offered by the changing character and structure of the packaging industry.

Unless you can become more competitive, with a highly informed market thrust, the very real potential for the European carton manufacturer in the packaging scene of the second half of the 1980s will fail to be fully realized. □

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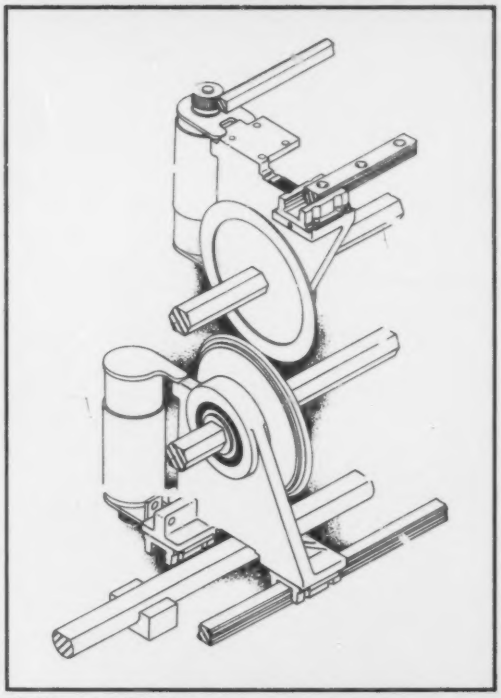

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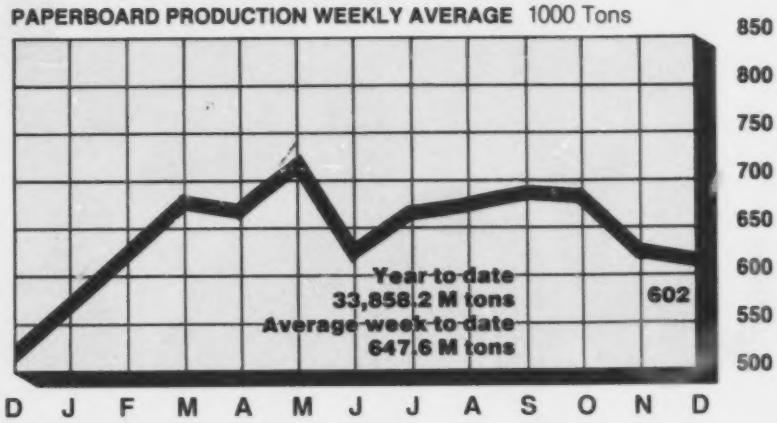
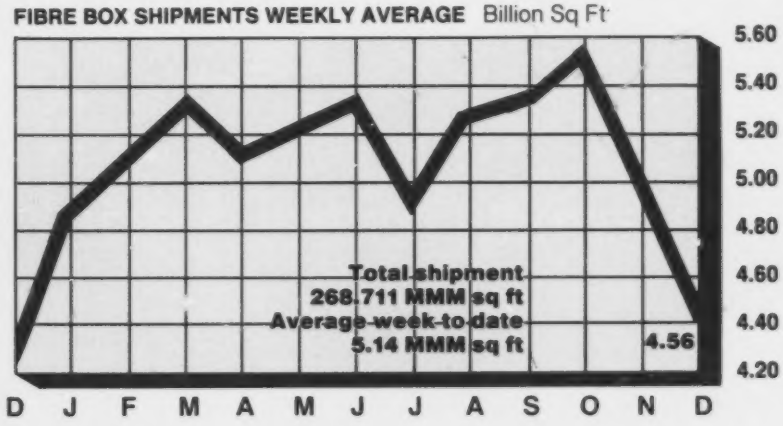


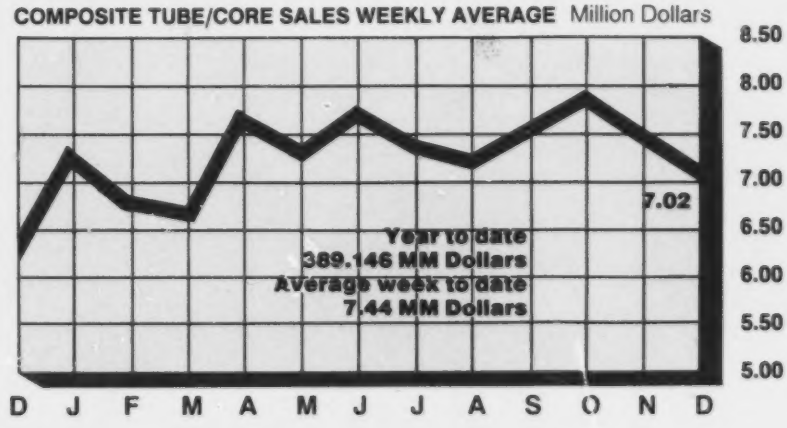
Mill operations

Initial data for '84 show about 33.86 million short tons of total board production, up 5.2% from the previous record of '83, and 16% above the tonnage in recessive '82. This persistent health, over a two-year span following a doldrum some called the worst since the Great Depression, illustrates the growing difficulty of basing today's dependable planning on historical parallels. Many experienced economists are becoming inclined to acknowledge their guesstimates could as easily go the other way, in such a business scene as this.



Board production

U.S. output in '84 included 74% of containerboards, about 6% above traditional average. The disparity is due to a strong containerboard export demand and a continued drop in boxboard packagings as alternate materials intrude. It is to be seen that boxboard volume gains during cyclical business upturns no longer fully recover losses incurred during recession. One victim of this evolution is fiber reclamation for recycling. No upturn proportionate to overall output expansions is visible in waste paper.



Rigid paper boxes

Set-up box billings ended '84 nearly 7% above '83, which was 10% ahead of '82, which was more than 6% down from '81 for the first annual drop since the 10% decline in depressed '75 from '74. At '84-end, all but one of the NP&PA's regional areas were ahead of billings in the year earlier, compared with only two at '82-end. Further, the margin of increase grew in recent months, suggesting this rigid box upturn is parallel to that of other board packagings.

Paperboard 1985 outlook is bullish

Strong opportunities exist for low-cost-process producers who dedicate themselves to moving upmarket in a value-added manner with structured product lines.

by John R. Curtin, Vice President and General Manager Bleached, Sales & Marketing, Continental Forest Industries

Some very useful information emerges from a look at the relationship of our industry to the current economic environment, the supply/demand ratios for cartonboards, underlying structural trends, and the response of the industry to these trends.

The U.S. money issue ought not to be overemphasized, but it has had a dramatic impact on the U.S. pulp and paper industry and serves as an appropriate point of departure for this discussion.

Overview

Industrial production. There is very little argument that the United States has recovered from its recessionary period, and consensus forecasts indicate that the economy is making a transition from recovery to expansion. However, the course of U.S. industrial production is important because it highlights why our mutual industries are in a relatively sluggish operating environment.

This article is based on a speech Mr. Curtin delivered to the Paperboard Packaging Council's annual membership meeting late last year.

Economic forecasts project more moderate gains, extending into 1985. The outlook for 1986 is questionable, but economists are forecasting recession primarily due to high interest rates, the U.S. deficit and the growing in balance in our trade position.

Consumption per real GNP (SEE CHART 1). Although there is less manufacturing in terms of GNP than in the past, there will always be a need for a paper industry. The growth of the communications and service sector has created a more constant demand for paper per unit of GNP than it has for paperboard. However, in each instance, the level of consumption of both paper and paperboard per billion dollars of real GNP is roughly 10% less in the case of paper in 1982 than it was in 1974 and 20% lower for paperboard than it was in the same peak year.

Of course, these numbers compute tonnage versus dollars, which ignores the extent of lightweighting that has actually been taking place in the packaging sector of the economy. Today, lighter-weight grades of paperboard are being utilized to provide the same level of performance as in the previous decade. If these same curves were plotted on a lineal foot basis, there would probably be no slippage.

In other words, the old guideline of "more from less" is in effect and conditioning the buyer to insist upon maximum performance in his material selections.

Comparative advantage. The United States pulp and paper industry has always dedicated itself to a worldwide competitive role. This

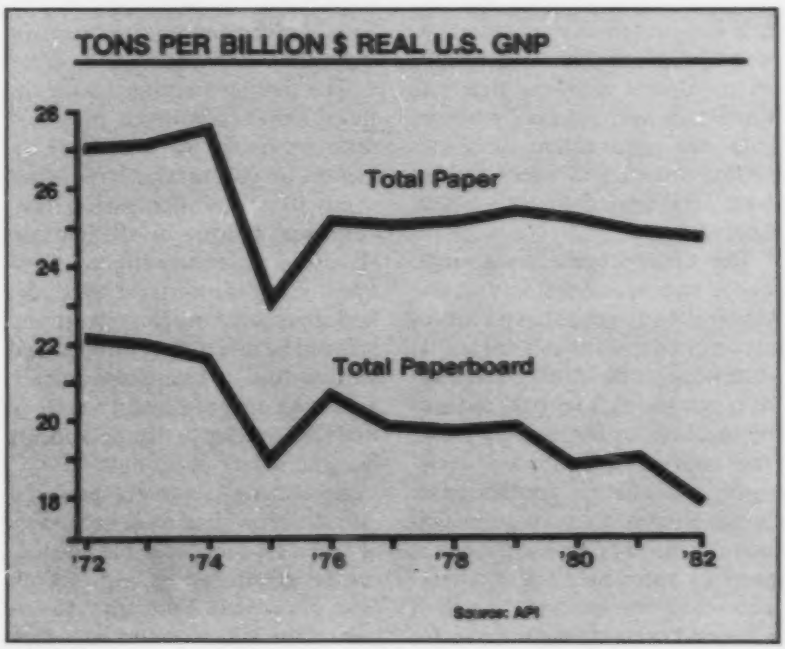


Chart 1

strategy was based upon a low infrastructure cost and a least-cost process.

The U.S. was the low-cost producer when measured in terms of softwood pulp during the '70s and early '80s. However, the strengthening of the U.S. dollar relative to Sweden and Canada negated this advantage, and today the U.S. is the high-cost producer when measured in U.S. dollars per ton.

The high exchange rate of the U.S. dollar has put American producers at a more than 25% disadvantage vis-a-vis their competitors abroad. Particularly noteworthy is the fact that Canada and Japan, the two biggest exporters to the U.S., increased their exports to this country by more than one third.

Much has already been said about the U.S. dollar, but a coincident factor that is overlooked is that there has been a major deterioration in the world trading system in recent years. Protectionism and nationalistic trade action are rising in virtually every country.

U.S. paperboard production. The U.S. paperboard industry is large, internationally competitive and is keyed closely to GNP rates of growth. During the past 18 months the industry has recovered from recession lows and expects record production in 1984. Further gains, though moderate, are predicted for 1985 and a recession forecast in 1986 should result in production being approximately at the 1984 rate.

In general terms the paperboard industry is 65% containerboard, 23% recycled and 12% bleached.

It is expected that this relative share of furnish will remain constant over the next few years.

Profits. The U.S. paper industry has been a relatively profitable industry when measured against other major U.S. industries. The industry was severely impacted by the recession of 1982/1983, and profits collapsed. Considerable balance-sheet damage occurred and was compounded by the closure of export markets due to an increasingly strong dollar.

During the past 18 months the industry has reliquified, reduced costs, raised priced and generally returned to the profit levels in effect in the 1979/1980 period. The outlook for this year continues to be encouraging.

Productivity. A major reason for the profit improvement has been the productivity gains registered by the industry and measured in tons per man hour. There is very little doubt that the U.S. lost its productive edge during the late '70s. In fact, productivity gains ranged in the 3% level between 1960 and 1973, collapsed to 1.3% from 1973 to 1980, and have now returned to 3% levels when measured between 1980 and 1984.

Capital expenditures. The period of major capital expansion in the industry occurred between 1975 and 1980. Mill-related expenditures doubled from $2 billion to $4 billion. This rate of reinvestment was fueled by a solid cash-flow position.

The reinvestment rate declined between 1981 and 1983 as profits came under pressure.

The outlook for this year is bullish. Profit improvement has resulted in a higher cash flow stream, and the industry is reinvesting in itself. Capital expenditures are forecast to reach the $5 billion level this year.

Cartonboard

(SEE CHART 2.) The production of cartonboard worldwide is directly related to the growth of nondurable products. As this chart indicates, the size of this market approximates 11 MM metric tons and has grown at approximately 1.9% during the past decade. It is a large sector of the fibre industry and has adjusted to lower rates of predictive growth as we look into the 1980-90 period. In fact, growth is projected at roughly half the rate of the prior decade.

The United States accounts for approximately half the cartonboard production followed by the EEC, Japan, Scandinavia and Canada.

Even though the industry is expected to grow to a 12 MM metric ton level by 1990, the highest rate of percentage gain will take place in the EEC and Japan. This will be primarily of a waste-based product nature and will favor home production.

Otherwise, the world is essentially growing in direct proportion to forecast GNP rates.

Folding cartonboard operating rate (SEE CHART 3). The operating rates for bleached, SUS and recycled board in the U.S. display varying degrees of volatility and cyclicality. As indicated by these curves, the demand for bleached board has been roughly in line with available capacity and therefore the operating rate has averaged approximately 92% during the past decade. Recycled board, with the exception of 1981, has always operated at approximately six to eight percentage points below the bleached-board curve. The SUS product operated at exceptionally high levels during the mid-'70s, declined dramatically in the early '80s, and has now returned to a relatively high operating-rate scenario.

Suffice it to say that bleached board has demonstrated considerably lower cyclicality than the other two grades, and all grades are forecast to operate at the high end of their structural capability during the next two years.

Cylinderboard machine shutdowns. As the '70s opened, the U.S. cartonboard industry was heavily oriented toward cylinderboard machines. Age, inefficiency and general rationalization began in earnest, and closures of both cylinderboard machines and mills have resulted in almost 2.6 million tons being taken off-line during the past 12 years.

It is forecast that an additional 95,000 tons of cylinderboard production will be closed between 1983 and 1986.

These numbers do not address the fact that improvements through new forming techniques have enabled the recycled industry to replace this tonnage through higher rates of productivity on rebuilt units.

Regardless, it is still noteworthy

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that the industry has closed roughly 40 mills and shut down almost 100 machines in a 15-year period.

Bleached board machines. In addition to cylinderboard machine closures, four Fourdrinier machines and one complete mill were closed during the '70s. This action was unprecedented in the operating history of the industry and resulted in almost 200,000 tons of bleached board capacity being taken off-line.

During the '80s two machines producing SUS were also closed with a net reduction of capacity approximating 100,000 tons. In other words, the rationalization of the production base of the industry has been a continuing phenomenon during the past 15 years and has left the industry with relatively modern capacity. Further rationalization is expected, especially in the cylinder boxboard sector.

U.S. bleached board operating rate by caliper (SEE CHART 4).

The bleached board sector of the U.S. cartonboard industry has been the fastest-growing product during the past decade. However, the bleached board industry is not homogeneous and can be segmented for our purposes. As you look at this chart, you can see that the operating rate, or the function of available capacity to projected demand, for lightweight .010-.14 bleached board has been consistently higher than the rate for either mid- or heavy-caliper material.

Furthermore, it is generally accepted that at 90% of capacity, industry margins are maintained. Above 90% margins improve and below 90% deterioration sets in.

During the past recessionary periods, prices on lightweights have not deteriorated, whereas the other grade sectors, which primarily are the average for the industry, have come under pressure.

Those machines which do not have lightweight capability must market their products in more direct competition with clay-coated recycled board.

The outlook for 1985 and 1986 indicates that the operating environment for all calipers will improve.

Trends

Worthwhile brands. The capital investment of the industry is driven by legitimate worldwide market trends. Consumer brand loyalty is important and the consolidation of major food companies is a result of their continuing drive for shelf space control not only in the U.S. but worldwide.

U.S. trade. As a result of worldwide expansion and the strong U.S. dollar, *imports* of manufactured goods have *surged* during the past two years, whereas *exports* have remained relatively *flat*. The mix of goods exported from the United States has changed dramatically and has had a direct impact on the paperboard industry as well as the folding carton industry.

MSF versus ton. The folding carton industry is characterized as a slow-growth, mature industrial sec-

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tor. This is true when measured on a tonnage basis. However, when measured on a lineal foot or MSF basis, the industry has been growing at approximately 3 to 4% per annum, which is slightly better than GNP. It furthermore points to the lightweighting that is continuing in the industry as it switches to higher-performance cartonboards to deliver stiffness, compression, and print quality at maximum levels and minimum weight.

Press speeds. There has been a dramatic improvement in the print fidelity demanded within the folding carton industry. Capitalization with new sheet-fed and rotary presses is a response to this trend. Press speeds have increased almost fourfold between 1970 and 1982.

Needless to say, full utilization of these presses and insurance of maximum fidelity requires a careful selection of cartonboard substrate.

Market share. Cartonboard must address these trends and selection is keyed to quality, performance and material efficiency. Bleached board has increased its share between 1980 and 1984, SUS has remained unchanged, and recycled has declined. These trendlines are expected to continue during the second half of the decade.

WORLDWIDE PRODUCTION OF CARTONBOARD
1970-90

	Production, MM Metric Tons			% Avg. Annual	
	1970	1980	1990F	1970-80	1980-90
U.S.	5.3	5.9	5.9	1.0	0.7
Canada	0.3	0.3	0.4	1.4	0.6
EEC	1.5	1.7	2.1	1.0	2.2
Scandinavia	0.7	1.2	1.3	4.8	0.9
Japan	1.1	1.2	1.5	1.7	2.0
Total	9.1	11.0	12.1	1.9	0.9

Source: SRI

Chart 2

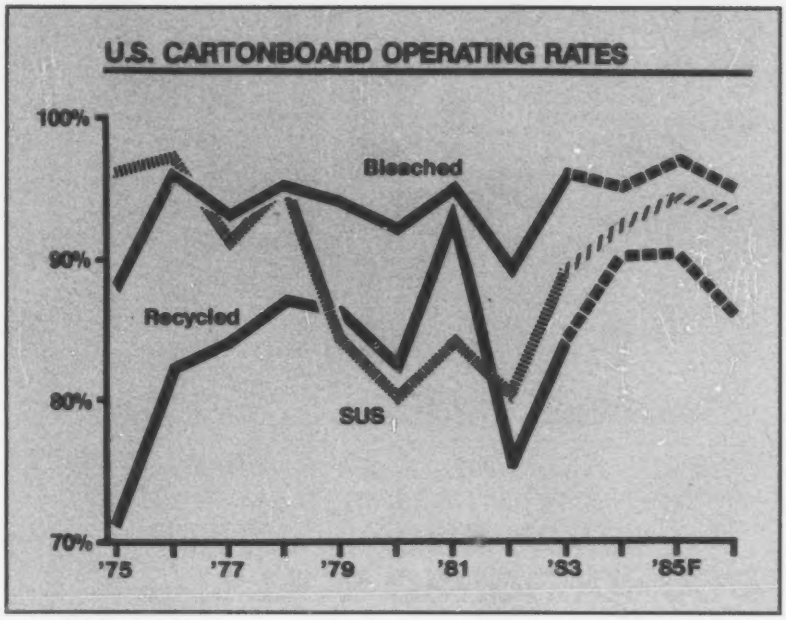

Chart 3

Response

Uniformity. The cartonboard industry has responded to these trends in a variety of ways, but in each case new capital has been required. A general qualitative upgrading has occurred.

This process can be best summarized as the drive for uniformity.

There is a range of tolerance surrounding each minimum specification. Modern technology enables the purchaser to buy the desired level of performance at close tolerance from a Fourdrinier machine; whereas a cylinderboard machine, with its inherent higher variability, will provide that level of specification at a much wider tolerance.

The difference between these two processes is worth a continuing five percentage points. In other words, the purchaser of Fourdrinier material will be receiving the minimum specification within a narrow tolerance; whereas, with a cylinder boxboard, he must build in a wider range of insurance.

Comparative advantage. U.S. cartonboard technology is dedicated to maximum performance at highest quality levels. During the past 12 months, there has been continuing discussion of Scandinavian and Finnish material making inroads into U.S. folding carton markets. These introductions have been selective and have demonstrated the product differentiation available worldwide.

The worldwide grade structure illustrates the increasing selectivity and differentiation at work within the folding carton industry. Continued improvement in brightness, printing surface and structural properties is a response to legitimate market-driven forces.

Folding carton board costs (SEE CHART 5). The economic response of the industry can best be measured in the cost of 20-point folding carton board discounted for inflation and calculated at the lowest-density-available basis.

As you can see from this chart, the cost of bleached board and clay-coated news has showed very little movement during the past eight years. The gap between the two grades widened during 1983 and to-

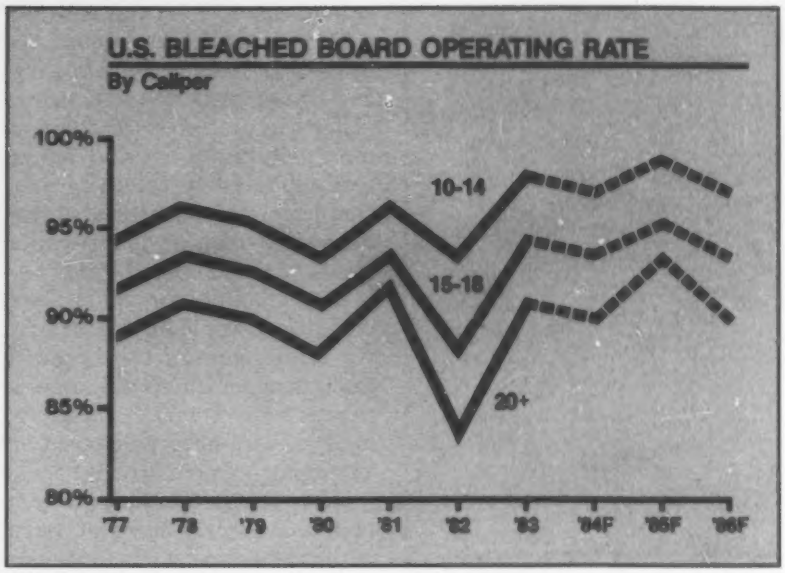

Chart 4

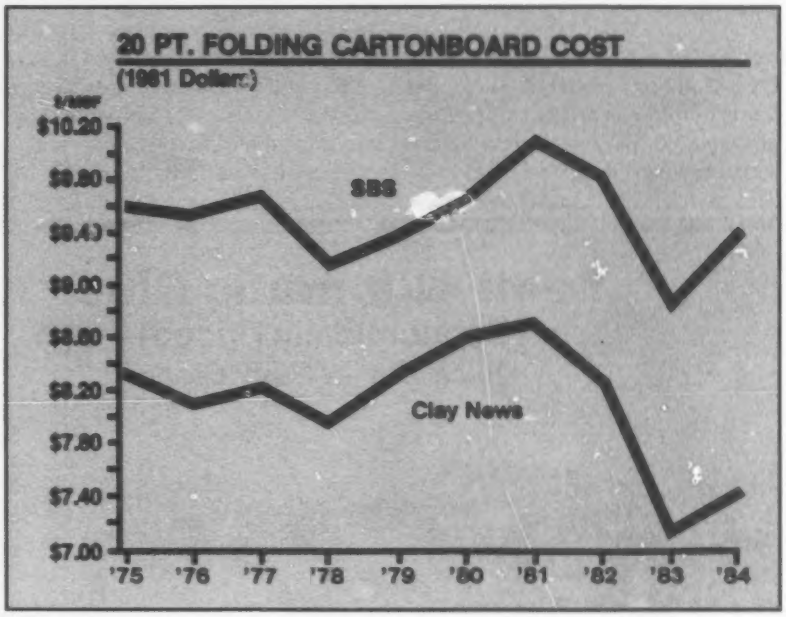

Chart 5

day is at its highest historical level.

There is very little doubt that overcapacity in the cylinder boxboard area has slowed price movement despite increasing raw material and energy costs.

Assuming that costs will push the clay news curve back towards its historical relationship with bleached board, the purchaser of folding cartonboard, providing he is utilizing lowest-density material for maximum performance, will be able to offset inflationary cost movement over time.

Not many industries today can display a price/performance curve that attests to a continuing commitment to provide high-efficiency material for its customers.

As an example, the newest process, a multi-ply TMP product, has extended this yield another notch, and today the folding carton converter is generating 12,500 cartons per TMP ton, versus 10,600 cartons per low-density SBS ton.

Outlook

(SEE CHART 6.) Looking down the road, it is important to keep the price relationship between bleached board, clay-coated news and plastic resin in perspective. During the '70s, plastics made dramatic and easy inroads into historical fibre-packaging markets. During 1980-83 plastic resins were priced at levels which would not provide satisfactory returns yet subsidized market penetration.

Competition with plastic is most apparent versus bleached board. It now appears the price competitiveness of plastic packaging versus bleached board packaging is tending to favor bleached.

Quality, economics, decorative and environmental considerations all enter into the buying decision vis-a-vis plastic and fibre calculations.

At the very least, one can say that the easy penetration of plastic into fibre markets is over, and the deregulation of natural gas pricing early this year could have an important bearing on the future price trajectory of ethylene derivatives.

Inventory/sales. A further point of consideration is the inventory-to-sales ratio for U.S. wholesale trade. The ratio has varied against its time trend during the past eight years. It reached a high point for this series in 1975 at 1.60. Today, it is at a low point at 1.40.

The data suggest that a modest correction is underway, yet the economy in 1985 should remain relatively strong due to the fact that inventory control policies have remained rigid and actionable and that no substantial build-up faces us in the pipelines.

U.S. dollar. The outlook for the U.S. dollar is critical to U.S. economy. A considerable incremental gain would come from the return of the dollar to its equilibrium trend line. If the dollar stays at its current exchange valuation, life will remain difficult, and the industry will be faced with strictly a U.S. consumption function. Conversely, should the dollar recapture some of its lost advantage, the U.S. will rapidly find

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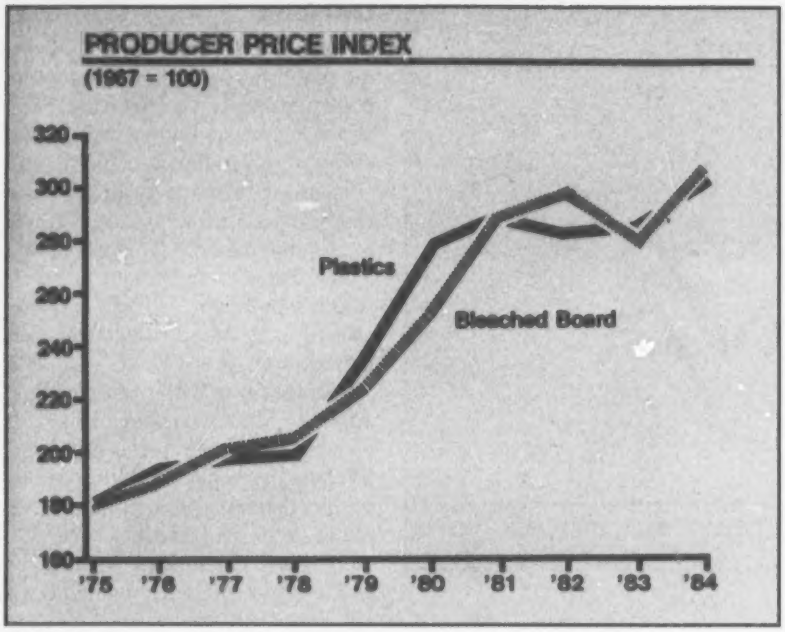

Chart 6

export markets for both its folding carton board and folding cartons.

Dollar value. There is very little doubt that the folding carton industry is trending upmarket. The dollar value of folding cartons shipped has grown at 6.8% per year, whereas units measured in tons have increased only 1.3% per year. The progression upmarket is a function of a demand for better graphics, coatings and barrier properties and stricter performance tolerances. In addition, more sophisticated distribution systems and inventory controls are forcing a very real distinction between the system-oriented folding carton plant and the job shop.

The demand for systems increases, and the ability of the folding carton industry to respond to the system demand is critical to its growth and profitability, hence the need for cartonboard designed for value enhancement.

SBS capacity/demand. The bleached board operating rate is one of the better indicators of the overall health of the industry, and the outlook for this grade is important to everyone. Consensus forecasts indicate that the industry will post relatively low levels of growth during the next few years, but low capacity additions will create a favorable operating environment. □

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